

REMARKS

Claims 1-28, 30-44, and 46-49 are present in this application. Claims 1, 23, 25, and 26 are independent claims.

Statement of Summary of Interview

Applicant thanks the Examiner for conducting the interview on January 16, 2009. During the interview a summary of the present invention, a proposed amendment for claim 1, and differences over the cited prior art were expressed to the Examiner.

It was explained that the present invention has an objective of enabling streaming of multimedia data using a device having limited battery life and limited memory.

It was explained that an aspect of the present invention is a negotiation between a communication partner and a communication apparatus of an intermittent transmission schedule in order to ensure that the communication apparatus that receives data transmitted intermittently can control its own power based on the intermittent transmission schedule. (Claim 1)

Subsequently, it was explained that a further aspect of the present invention is that the communication device that receives the data transmitted intermittently is also the device that transmits the intermittent transmission schedule. (Claims 23, 25, 26)

§ 103(a) Rejection – Goldhor, Sen, Laroia

Claims 1, 6, 9, 10, 44, 47 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,625,656 (Goldhor) in view of U.S. Patent 6,691,312 (Sen) and U.S. Application Publication 2004/0258084 (Laroia). (Para. 5 at page 2 of the Final Office Action).

Claims 2-5, 7, 8, 11-22, and 46 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Goldhor, Sen, Laroia, and further in view of U.S. Patent 7,197,557 (Asar). (Para. 6 at page 7 of the Final Office Action).

Claim 1 has been amended as proposed during the interview. Applicant respectfully traverses these rejections based on claim 1 as amended.

Claim 1

The present invention provides a data communication apparatus with a capability of performing reception and playback of multimedia data in parallel (commonly referred to as streaming). Streaming enables the data communication apparatus to start playing multimedia data without waiting for the entire multimedia data to download. Thus, streaming enables playing of multimedia under conditions of limited memory. However, streaming of multimedia data with a portable wireless communication terminal can result in rapid battery discharge due to continuous use during playing (specification at paragraph bridging pages 2-3).

Subsequently, the present invention provides a communication method based on intermittent communication that is modified to prevent underflow and that involves negotiation of an intermittent communication transmission schedule between the receiving side and the transmitting side. By negotiating an intermittent transmission schedule between the receiving side and the transmitting side, the receiving side can stop electric power supply to its communicator in accordance with the intermittent transmission schedule.

Differences over Sen

The Examiner relies on Sen to teach the claimed “proposal step.” (Final Office Action at page 6). In particular, the Examiner relies on sections of Sen at col. 2, lines 19-29, col. 3, lines 37-48, and col. 4, lines 56-67.

The section at column 2 of Sen discloses, among other things, “The method may further include distributing the determined transmission schedules to nodes in the distribution tree.”

The section at column 4 discloses, among other things, “Caching at the root node allows the root node to smooth an incoming live or stored video stream, and transmit the resultant schedule to a downstream node. The buffers at the internal nodes allow each node to accommodate the difference between the node's incoming and outgoing transmission schedules when the outgoing and incoming link capacities are different. Additionally, by increasing the

effective or virtual smoothing buffer size for the upstream node, these buffers provide more aggressive smoothing opportunity along the upstream link.”

Although Sen teaches techniques for determining a set of optimal transmission schedules over a distribution tree (col. 3, first paragraph under “Detailed Description”), Applicant submits that Sen does not teach negotiation involving a proposal step.

According to the specification at page 37, in a section “Negotiations about intermittent period”: “If it has been judged at Step 806 that the operation should be shifted to another intermittent period mode, either the communication quality manager (103 or 123) of the wireless communication terminal or the base station, which made that judgment activates the second control process (the second negotiation process) for the partner’s communication quality manager (Step 807, 902) and makes a proposal of a transition to an intermittent communication mode (transmission schedule) having a new intermittent period.”

Further in the section “Negotiations about intermittent period,” at pages 38-39: “If the period calculated by the communication quality manager 123 is equal to the period proposed by communication quality manager 103 on the terminal side, the base station approves the proposal. If it is equal to the current period, the station side rejects the proposal. If it is a value otherwise, the base station proposes an amendment. When an amendment has been proposed, the calculation sequence of the maximum intermittent period is repeated until a response otherwise is returned, meaning that the second control process will end when the proposal side (communication quality manager 103 on the terminal side) receives an approval or rejection response (Steps 808, 902).”

In order to clarify that the “proposal step” is with respect to the negotiations, claim 1 has been amended to add that the proposal step is performed “in order to receive an approval or disapproval of the proposed first intermittent transmission schedule.”

Applicant submits that Sen does not teach at least a proposal step to receive an approval or disapproval of the proposed intermittent transmission schedule.

Differences over Laroia

Furthermore, claim 1 recites an “electric power supply stop step,” as follows:

“an electric power supply stop step for stopping electric power supply to an inter-node communicator during a non-transmission time based on a current intermittent transmission schedule of the data being transmitted intermittently”

The Examiner relies on the newly cited reference of Laroia for teaching this feature. In particular, the Examiner refers to Laroia’s teaching of a “sleep mode,” at para. 0021.

Paragraph 0021 of Laroia states:

“Typically, wireless terminals 203 when not in use are in a standby mode commonly referred to as a “sleep” mode. In the sleep mode most of the circuitry in the wireless terminal 203 is turned off in order to conserve energy and, thereby, extend battery life. In order for each of the wireless terminals 203 to detect whether there is a paging message intended for it, the particular wireless terminal 203 must come out of the sleep mode, i.e., wake up, and monitor incoming time slots for an associated paging message.”

To the contrary, claim 1 requires that electric power supply be stopped to an inter-node communicator based on a current intermittent transmission schedule.

Applicant submits that Laroia’s sleep mode is not taught as being invoked based on a current intermittent transmission schedule.

For at least this additional reason, Applicant requests that the rejection be reconsidered and withdrawn.

Claim 46

Claim 46 depends from claim 1, and further recites “a second setup step,” and “a modification step.”

The Examiner relies on Sen for teaching the features recited in claim 46 (see page 16 of the Final Office Action). In particular, with regard to the “modification step” the Examiner refers to Sen at col. 4, lines 56-67.

Applicant submits that the Examiner has misunderstood the teachings in Sen at this section, as the Examiner refers to the phrase as “accommodate the difference in transmission schedule”.

In a section “Differential Caching” the complete statement at col. 4 of Sen discloses:

“The buffers at the internal nodes allow each node to accommodate the difference between the node’s incoming and outgoing transmission schedules when the outgoing and incoming link capacities are different.”

Applicant submits that this statement in Sen does not teach modifying a transmission schedule. Rather, Sen merely teaches that a buffer allows for differences in transmission schedules at a node.

At least for this additional reason, Applicant requests that the rejection of claim 46 be reconsidered and withdrawn.

§ 103(a) Rejection – Goldhor, Sen, Laroia

Claims 23, 24, and 48 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Goldhor, Sen, and Laroia. (Para. 7 at page 20 of the Final Office Action). Applicant respectfully traverses this rejection.

Claim 23 covers, among other things, an aspect of the invention in which the transmission of a schedule is for purposes of receiving data according to the transmitted schedule.

In particular, claim 23 covers the feature of “a communicator for transmitting the intermittent transmission schedule to the transmitting side in order to receive data transmitted intermittently based on the intermittent transmission schedule.”

The Examiner relies on Sen at col. 3, lines 25-27, 38-47, 49-59, for teaching this claimed feature.

These sections of Sen teach that server 102 multicasts streaming video to a number of clients 106a-106e. Other sections in Sen disclose that the root node, which could be the server 102, may transmit the schedule to a downstream node (col. 4, lines 6, 7, 60-63). Thus, it can be seen that Sen teaches transmission of schedules from a client to the server. According to claim 23, the node that receives the data is the node that transmits the schedule. In Sen, on the other hand, the client both receives the data and receives the schedule.

In the present invention, because the streaming data is received based on a schedule transmitted by the receiver, electric power supply to the communicator can be stopped based on the intermittent transmission schedule, thereby enabling streaming play by a data communication apparatus having limited power supply (specification at paragraph bridging pages 48-49).

The Examiner relies on the newly cited reference of Laroia for teaching this feature. In particular, the Examiner refers to Laroia’s teaching of a “sleep mode,” at para. 0021.

As noted above, Applicant submits that Laroia’s sleep mode is not taught as being invoked based on a current intermittent transmission schedule.

For at least these reasons, Applicant submits that Goldhor, Sen, and Laroia, either alone or in combination, fail to teach or suggest the claimed data communication apparatus for receiving data transmitted intermittently from a transmitting side, including among other things “a communicator for transmitting the intermittent transmission schedule to the transmitting side in order to receive data transmitted intermittently based on the intermittent transmission schedule; and an electric power supply controller for stopping electric power supply to the communicator during a non-transmission time based on the intermittent transmission schedule.”

Applicant requests that the rejection be reconsidered and withdrawn.

§ 103(a) Rejection – Goldhor, Sen, Laroia

Claims 25-28, 30-43, and 49 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Goldhor, Sen, and Laroia (Para. 8 at page 23 of the Final Office Action).

Claim 25 covers an aspect that the inter-node communicator transmits a schedule to and receives data from a communication partner appliance. Claim 26 recites the same feature.

The Examiner relies on Goldhor for teaching the claimed “inter-node communicator.” In particular, the Examiner refers to Goldhor’s Intermediate Server Node 250, shown in Fig. 11.

Although Goldhor’s Intermediate Server Node is disclosed as receiving data packets from Stream Data Source 100 over network 200, then forwarding the data packet to a User System 317, Goldhor does not disclose transmission of a transmission schedule.

The Examiner relies on Sen for teaching the claimed “schedule judging portion for transmitting via the inter-node communicator a transmission schedule.”

As noted above for claim 23, Sen does not teach a server for receiving data based on a transmitted schedule. Rather, the server in Sen transmits both data and a schedule downstream.

Also as noted above, Applicant submits that Laroia’s sleep mode is not taught as being invoked based on a current intermittent transmission schedule.

For at least these reasons, Applicant submits that Goldhor, Sen and Laroia, either alone or in combination, fail to disclose a data communication apparatus for playing received data, including among other things, “an inter-node communicator for transmission of a transmission schedule to and for reception of data from a communication partner appliance;” “a schedule judging portion for transmitting via the inter-node communicator a transmission schedule of the data to the communication partner appliance, according to which the buffer memory will not cause either overflow or underflow;” and “an electric power supply controller for stopping

electric power supply to the communicator during a non-transmission time based on the transmission schedule." A similar argument applies as well to claim 26.

Applicant requests that the rejection be reconsidered and withdrawn.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact **Robert Downs** Reg. No. 48,222 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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